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Is it advisable that the Tuberculosis Order of 1914 or some Amendment thereof should be made operative?*

By Professor J. B. BUXTON, F.R.C.V.S., Cambridge.

I am deeply appreciative of the honour which the Club had done me in extending this invitation to contribute a paper for consideration and discussion at this meeting.

Much has happened since the introduction and brief existence of the Tuberculosis Order of 1914. Unfortunately the period of operation was insufficient to permit of any definite conclusions being arrived at either one way or the other.

It must be presupposed that there was little or no doubt in the minds of those who were best able to judge that, ten years ago, the introduction of such an order was in the best interests of the State. The questions which we have to discuss to-night are (1) have conditions so altered during this relatively short space of time that such a step is now regarded as unnecessary, and if the answer is in the negative, (2) would the re-introduction of such a measure fulfil the requirements of modern conditions? In considering these questions one must take into consideration the requirements of the milk-consuming public and of the stock owner.

It is certain that nothing has occurred during the past ten years which can be regarded as in any way modifying the following momentous dictum of the British Royal Commission. "We are therefore led to a conclusion from which there seems to be no escape, not only that tuberculosis which was present in each of the cases of Group I. (human tuberculosis) was identical in all its features with bovine tuberculosis, but also that the bacilli actually came from a bovine animal, the tuberculosis was bovine tuberculosis implanted in a human body. There can be no doubt but that in a certain number of cases the tuberculosis occurring on the human subject, especially in children, is the direct result of the introduction into the human body of the bacillus of bovine tuberculosis; and there also can be no doubt that in the majority at least of these cases the bacillus is introduced through cow's milk. Cow's milk containing bovine tubercle bacilli is clearly a cause of tuberculosis and of fatal tuberculosis in man."

It may also be held, without fear of contradiction that the following remarks by Sir John M'Fadyean, which were made twenty-three years ago, are as true to-day as they were then—"It cannot be denied that what may be called bovine tubercle bacilli, are, as a rule, distinctly more virulent for cattle and other domesticated animals than human bacilli, or that the results of experiments indicate that in natural circumstances there is little danger of cattle becoming infected from human beings. But it cannot be admitted that the low virulence of human bacilli for cattle proves, or even makes it probable, that bovine bacilli have only a feeble pathogenic power for man. That might have been held to be probable if it had been shown that bovine bacilli were very virulent only for cattle; but since it is well established that these bacilli are highly dangerous for such diverse species as the rabbit, horse, dog, pig, and sheep, and in short, for almost every quadruped on which they have been tried, it appears to be highly probable that they are also dangerous to man. At any rate, it is impossible to cite any ascertained fact relating to other bacterial diseases that makes the contrary conclusion probable. It is well known that the majority of disease-exciting bacteria are harmful to only one or two species, but all those that are common to all the domesticated animals are also pathogenic to man."

The unequivocal statement in the final report of the Royal Commission that "we prefer to regard these two types as varieties of the same bacillus, and the lesions which they produce, whether in man or in other mammals, as manifestations of the same disease" must be regarded as incapable of misinterpretation in the present state of our knowledge of the disease. I have purposely referred to these authentic statements because, although during the period under review suggestions have been made which, in some instances, may have had the effect of depreciating the previously accepted idea of the power of the typus bovinus of producing tuberculosis in the human subject, I submit that, in the light of our present knowledge that danger is as great to-day as it was in 1914, and that the following statement by the Commissioners retains its full significance:—"A very considerable amount of disease and loss of life especially among the young, must be attributed to cow's milk containing tubercle bacilli. The presence of tubercle bacilli in cow's milk can be detected, though with some difficulty, if the proper means be adopted, and such milk ought never to be used as food. There is less difficulty in recognising, clinically, that a cow is distinctly suffering from tuberculosis, in which case she may be yielding tuberculous milk. The milk coming from such a cow ought not to form part of human food, and indeed, ought not to be used

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as food at all. Our results clearly point to the necessity of measures more stringent than those at present enforced, being taken to prevent the sale or the consumption of such milk."

If we accept the principle that the bovine type of tubercle bacillus is capable of producing a fatal tuberculosis in man, and that the ingestion of milk contaminated by these organisms is a fruitful source of such infection, it is, *a priori*, necessary to ascertain whether or not the source of contamination has grown less; whether or not the incidence of tuberculosis in cattle has decreased to such an extent as to have rendered the proportion of such animals which are capable of so contaminating milk a negligible quantity. At or about the time of the introduction of the Tuberculosis Order it was estimated that about 30 per cent. of the cattle in this country were affected with tuberculosis, and that approximately 3 per cent. of tuberculous cows were suffering from tuberculosis of the udder. There can be no doubt that at the present time the proportion of tuberculous cattle is greater than 30 per cent., indeed, in previously untested herds it is no uncommon experience to find that 60 per cent. of adult animals react to the tuberculin test. It is equally certain that the proportion of cases of tuberculosis of the udder has not diminished. Moreover, although it may be assumed that the gravest risk of contamination of milk by the bovine tubercle bacillus occurs in connexion with tuberculous mastitis there is ample evidence to show that a very considerable risk is always present in the case of animals which are clinically affected. Indeed, the presence of an animal which reacts to the tuberculin test in a dairy herd, even if it is not showing clinical evidence of tuberculosis is a menace to the production of uncontaminated milk since it can never be determined, with any degree of accuracy, when such an animal may be voiding tubercle bacilli. It has frequently been suggested that the ingestion by children of milk which contains few tubercle bacilli may be a means of inducing in them a subsequent immunity to the disease. Whatever hypothetical advantage may be claimed for such a procedure the mere fact that under ordinary conditions, it is impossible to ascertain the weight of infection which is being administered renders it an experiment which few of us would be willing to apply to our own children.

The vast majority of milk producers fully realise the grave responsibility which they bear in the distribution of milk to the consumer, and they also realise, probably better than most people the serious losses that inevitably result from the presence of tuberculous animals in their herds. In 1908 Brittlebank estimated the annual loss to dairy farmers in Great Britain from tuberculosis alone at nearly one million pounds, and although accurate figures are not available it is patent that that figure must be considerably greater. Even if we ignore the question of the communicability of tuberculosis from cattle to man and the menace of bovine tuberculosis to the public health, it is evident that the heavy financial loss to the live stock industry urgently requires the elaboration of some method by which at least those animals which constitute the greatest source of danger shall be eliminated from the herd. From the point of view of the stock owner as from that of the milk consumer, the ideal would be obtained in this respect if tuberculosis could be eliminated from our herds. When it is realised, however, that at least one-third of the milch cows of this country are tuberculous it is evident that such a step would not only completely disorganise milk production, but would be a set-back to cattle breeding which would not be overcome for many years. Moreover, the financial loss by whomsoever it might have to be borne would be an insurmountable difficulty. Indeed it is doubtful if such a drastic course could be justified, for although it is admitted that any animal which reacts to the tuberculin test is a potential source of danger it is agreed that a very considerable proportion suffer only from a limited and often quite insignificant form of the disease. With these facts in mind there can, I submit, be no doubt that the removal of clinically affected animals should be our aim and that such a course is an urgent necessity.

The Tuberculosis Order of 1914 sought to eliminate animals which were known to be a source of danger in the dissemination of tubercle bacilli from the herd, and for the purposes of the Order such animals were classified as follows:—

(1) Any cow which is, or appears to be, suffering from tuberculosis of the udder, indurated udder or other chronic disease of the udder; or

(2) Any bovine animal which is, or appears to be, suffering from tuberculous emaciation; or

(3) Any bovine animal which is suffering from a chronic cough and showing definite clinical signs of tuberculosis.

Notice of Disease.

The onus of notification was put upon the owner or person in charge of such animals and any Veterinary Surgeon who in his private practice was employed to examine any bovine animal, and was of the opinion that the animal was suffering from one of the forms of tuberculosis enumerated above.

In this connexion it would appear that the steps which it was proposed should be taken were not sufficient to ensure the early notification of the existence of tuberculous mastitis. Induration of the udder is a slow insidious process, and is unaccompanied by heat or tenderness. It is easy to understand that the owner and even the milker might be unaware of what was actually taking place until well-marked changes were established in the organ and possibly in the milk. When we remember that in the earliest stages of tuberculous mastitis virulent tubercle bacilli may be discharged in the milk, it is evident that no time must be lost in diagnosing the condition. The same urgency is necessary in connexion with animals in the third category since a cough may be the only evidence of tuberculosis which would be readily discoverable by the person in charge of the animals. The only safeguard against delay in notifying the existence of the early stages of clinical

tuberculosis is by regular inspection by Veterinary Surgeons, and at frequent intervals. I suggest that if real progress is to be made in the elimination of dangerous animals from a dairy herd provision should be made for such inspection, and that an interval of not more than three months should elapse between each examination.

Examination of Animals.

The Local Authority was required to send a Veterinary Inspector with all practicable speed to examine the diseased or suspected animal and any other bovine animals on the premises which he might consider it desirable to examine to ascertain whether they were suffering from the notifiable form of the disease. Doubtless in most instances the Veterinary Inspector would consider it desirable to examine at least in contact animals, but it would ensure more uniform inspection if he were definitely required to examine every adult animal upon the premises. In the circular letter from the Board to Local Authorities, dated 23rd June, 1914, it was recommended that all bovine animals should be so examined.

Application of Tuberculin Tests.

The Inspector was only permitted to apply the Tuberculin Test to any cow which he might suspect of suffering from tuberculosis of the udder, or of giving tuberculous milk, or to any bovine animal which was suspected of suffering from tuberculous emaciation, with the previous consent in writing of the owner of the animal or his agent. In the circular letter referred to above it was stated that "in the case of an animal suspected of suffering from tuberculous emaciation, use should only be made of the tuberculin test when the evidence furnished by a clinical and microscopical examination is insufficient.

The tuberculin test may also be used sometimes with advantage in cases where tuberculosis of the udder is suspected or an animal is said to be giving tuberculous milk, but it must be borne in mind that reaction to the test alone is not conclusive evidence of the existence of either of these forms of disease. The use of the test in such cases should be confined to the purpose of eliminating all question of tuberculosis of the udder, etc., by obtaining evidence that the animal is not tuberculous.

It will, I think, be admitted that the application of the tuberculin test should not be unduly discouraged. In such cases as we have in mind few owners would raise any objection to the use of the test as an aid to speedy diagnosis. Indeed, in the vast majority of instances, when there was delay in arriving at a definite conclusion they should require it to be applied. Before coming to a decision that an animal came within the scope of Article 5 of the Order the Veterinary Inspector was required, in the case of a cow suspected of giving tuberculosis milk, or of suffering from tuberculosis of the udder, to take samples of the milk and examine them microscopically for tubercle bacilli, and in the case of an animal that was suspected owing to an abnormal discharge to examine such discharge microscopically. Since it is well known that the presence of tubercle bacilli in the milk from a tuberculous udder is by no means constant, but varies within very wide limits, it is conceivable that at the time of taking the sample and perhaps for some days after there might be no bacilli in the milk, or so few that their presence could not be determined microscopically. In such a case there would have to be a prolonged period of isolation or alternatively the milk would be used with the risk of a heavy contamination with tubercle bacilli at any moment. It not infrequently happens that in a case where there is a temporary cessation of the extrusion of bacilli the administration of a dose of tuberculin produces a heavy contamination of the milk. In such cases, when the Inspector has grave reason to suspect the presence of tuberculous disease of the udder either by reason of his clinical examination or of the fact that tubercle bacilli have been previously found in the milk supplied from that herd, he should be definitely encouraged to employ the tuberculin test in the interest of both the owner and the consumer. The elimination of cows with tuberculous udders undoubtedly removes the most material and dangerous source of infection both of human beings and of bovine animals, but it is usually after the milk has become infectious that these cows are detected. The circular letter also urged upon local authorities, the necessity for caution on the part of their Veterinary Inspectors in the diagnosis of the scheduled forms of the disease and stated "The Board quite recognise that errors in diagnosis may occur occasionally, but experience has shown that not infrequently animals have been slaughtered which obviously did not come within the scope of Article 5. Further, as regards tuberculous emaciation, not only must the animal be emaciated to a pathological degree as distinct from being in a poor condition, but the emaciation must be due to tuberculosis—and where the information relates to an animal suffering from chronic cough, slaughter may only be carried out when the Veterinary Inspector from the clinical signs is satisfied that the animal is tuberculous and chronic cough is present." If the proportion of cases of tuberculous mastitis is to be permanently reduced it is obvious that all animals which are a potential source of danger to other bovine animals must be removed, and it is, I submit, a mistaken policy to urge undue caution upon the Inspectors. It is evident that when first such an order is applied large numbers of affected animals will have to be dealt with. In the ordinary course of events this number should decrease annually until a more or less stationary figure is reached. If, however, a vigorous attack is not made upon all animals which are capable of spreading the disease this figure will assume such proportions that the stockowners and indeed, all sections of the public will be discouraged by what would appear to be the inadequateness of the Order. In so far as tuberculous emaciation is concerned, any animal which appears to be unduly

emaciated and presents clinical evidence of tuberculosis, as well as any animal whatever its bodily condition which is found to be extruding tubercle bacilli should be included in any Order which is introduced for the purpose of lessening the spread of bovine tuberculosis. Indeed, Inspectors should be specifically encouraged to seek such animals. It might at first sight appear that any such widening of the scope of an order dealing with clinically affected animals would render the working cost unduly high, but it must be realised that such an increase would only be apparent for a relatively short time, and that subsequently, it would be less than would be the case if more conservative measures were adopted.

Slaughter of Diseased Animals.

The Order of 1914 directed that the Local Authority should cause disease animals to be slaughtered unless (*a*) the owner or his agent objected to the animal being slaughtered under the provisions of the Order, or (*b*) the value of the animal exceeded thirty pounds, in which case the special authority of the Board had first to be obtained. In the previous Tuberculosis Order it was also provided that this special authority should not be given in the case of any animal valued at more than thirty pounds, and if so long as the animal was detained and isolated, and the milk (if any) was dealt with, in accordance with the provisions of that Order. It would appear to be necessary in any future Order that provision should be made for the retention of valuable in-calf cows for a limited period by the owner so long as measures for adequate isolation could be ensured. Provided that isolation could be effected there would be no reason why valuable cows, even if suffering from tuberculous mastitis, should not be kept until they had calved.

Compensation.

The scale of compensation of the 1914 Order, viz.: Whole value plus 20s. for animals which on post-mortem examination were found not to be tuberculous; three-fourths of the market value for animals suffering from tuberculosis other than of an advanced nature, and one-fourth of the value in the case of advanced tuberculosis, received some criticism. It is almost certain that had the Order been in operation for a longer period it would have been found that the basis of valuation and compensation was reasonable.

It will, I think, be agreed that, on consideration of all the facts, the reintroduction of the Tuberculosis Order of 1914, with, perhaps, some slight modifications is not only advisable, but is indeed urgently necessary, in the interests of everyone who is concerned in the production and the consumption of milk. It is generally agreed that the ideal which should be sought is the complete eradication of tuberculosis from our herds, and it is also realised that the difficulties which would confront anyone who attempted to attain such an ideal by radical measures would be insurmountable. It is conceivable that by the judicious application of reasonable methods a result

(Continued at foot of next column.)

A Clinical Survey of Simple Distemper.*

By G. H. Livesey, M.R.C.V.S.

The Provisional Committee have honoured me very greatly in inviting me to contribute a paper dealing with disease in the dog, and I appreciate this particularly, as this is the fourth occasion on which I have presented a paper on the dog before this Association. Sixteen years ago, in discussing certain affections of the skin, I alluded to the exanthem of distemper, and in other papers of more recent date I have also referred to this subject, so that in dealing with it once more and perhaps with the knowledge which comes of greater experience, I shall be bringing to some conclusion the work which has occupied so much of my time and attention during the whole of my professional life. I think the present is a most opportune occasion upon which to put on record and to debate our views as to the true clinical aspect of distemper. For centuries we have been groping in the dark, knowing little or nothing of the disease we are endeavouring to treat; but in the near future there is distinct hope that we shall gain definite knowledge at the hands of those who are engaged in the work of research. When once the causal organism has been discovered and identified beyond dispute, we may look for an entirely new method of procedure with regard to its destruction. When a pure culture of it has been applied to a perfectly healthy dog we shall then be able to know what are the true symptoms which are peculiar to the presence of that organism alone and uncomplicated by the presence of others. At the present time this matter is in dispute, so that it would be impossible to get a unanimous opinion as to what the true symptoms of distemper really are.

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may be obtained in time which will fall little short of complete eradication.

The first step must be to remove the dangerously affected animals and to ensure constant supervision of the remainder. To increase the facilities for examining mixed milk for the presence of tubercle bacilli. To educate the public to consume milk from tubercle free herds even though the cost is more, and so encourage the dairy farmer to increase such herds and reimburse him for the additional expense which he bears.

Encourage the rearing of calves from tubercle free herds, both for the replenishment of those herds and of others. A demand for milk from animals free from tuberculosis will eventually do far more towards the suppression of bovine tuberculosis than will any form of legislation.

Just as the course of the disease is slow and insidious, so must be the work of eradication. The desired result cannot be obtained in our lifetime, but I am convinced that seed properly sown now will, in the course of time, bear the desired fruit.

*Presented to the N.V.M.A. Congress, Aberdeen, 1924.

Most of us are agreed that the common type of so-called distemper is the result of a mixed infection, but few agree as to the importance of the part played by the various organisms involved. There are a few veterinary surgeons who to-day believe that they can recognise the pure disease uncomplicated by other infections and can treat it with moderate success, and moreover can recognise complications and sequelæ as such and not confuse them with the original disease. For many years I have held tenaciously to this position, though I have not been able to bring forward convincing evidence in proof of what are as yet merely assertions. To do so one would need to be a wealthy bacteriological research worker, which I am not, my evidence being only that which comes from close clinical observation over a long period of years. So to-day I repeat that this is a good opportunity to put on record some clinical facts relating to distemper, so that the deductions which may be drawn from them may be confirmed or rejected when the more perfect knowledge is available, which will come from the results of the present research.

From time immemorial, distemper has been recognised as an inflammatory catarrhal fever, and it is scarcely necessary for me to remind you of the classic symptoms which have been described year after year in every book and paper on dog diseases. Briefly, they may be summarised as follows: Rise of temperature, thick muco-purulent discharges from nose and eyes, husky cough, diarrhœa, wasting, followed by pneumonia, jaundice, enteritis, convulsions or chorea. These are the commonly accepted symptoms, but of course this is not an exhaustive list of all the symptoms that are recognised. Any person who looks to these symptoms alone as a basis for forming a diagnosis is, in my considered opinion, going to miss the disease in more than 50 per cent. of his cases. I think our observation must take us a little further before we can say that we are not dealing with the disease. If we watch carefully from day to day the progress of many of what are considered minor ailments of the dog, we shall notice that there is a similarity in the course that they run, and that, not infrequently, when a time arrives when we can say that the animals are convalescent or cured, they quite suddenly develop distemper, showing two or more of the classical symptoms of distemper, and, moreover, not infrequently the result is unfavourable. The interpretation placed by most practitioners upon this course of things is that the already weakened patient has easily fallen a prey to the infection of the disease; they do not associate the distemper directly with what has gone before. Similarly, in the case of a dog with a trifling cold or cough, or a sharp attack of vomiting and diarrhœa, followed in a few weeks by a fit or series of convulsions, it has been the custom not to associate the fits with the previous cough or diarrhœa, and many of these cases —they are common enough—are not believed to be distemper at all. I strongly hold the opposite view and always look upon the second phase of symptoms as a relapse, or at least a confirmation of the diagnosis of the original symptoms as being those of distemper.

By watching numbers of dogs carefully over a long period and making a reasonably careful examination of their bodies and general condition, one becomes struck with the frequency with which one meets certain conditions, and naturally one looks for some cause for these conditions. I do not mean that the dogs are necessarily sick dogs, or distemper cases, but just the typical patients that come into one's hands in the usual course of practice, many of which, of course, are not supposed to be sick dogs in the sense that they have been recognised by the owner as suffering from disease. Many of these dogs, if examined carefully, will be found to be different from normal, and it is quite astonishing to find how far many of them are from normal even when they appear to the casual observer to be in their customary state of health. It is quite common to find a young dog who is perhaps only a little dull or who has not eaten his dinner, but in every other respect quite well and enjoying his walk or exercise, to have a temperature raised 3 or 4 degrees. In the vast majority of such cases no notice is taken by the owner, and it is only by chance that one meets with them. The dog is soon apparently quite himself again. It is later on, and only later on, that distemper is recognised in some form or other. Again, it is surprising, in looking over numbers of dogs, to find how many have the rash of distemper or traces of it on some part of the skin or mucous membrane, though at the same time they may not appear to be ill and the presence of the disease is unsuspected. One becomes more and more impressed with the prevalence of the disease and the almost insuperable difficulty in excluding the infection from healthy animals.

After very careful observation, I have endeavoured to tabulate all the symptoms I could recognise in every case, and in every suspected animal, over a long period of years; from the information thus gained I have endeavoured to extract those symptoms which were common to all, or at least to the majority. I have not found one which was definitely common to all, but my failure was probably due to the fact that I saw dogs in all stages of the disease, and not always at the onset. The most universal symptom is undoubtedly the exanthema, which I found in some stage of formation in nearly every case. The next most universal symptom, or perhaps I should say characteristic, was some change from the normal nervous balance. This characteristic or train of symptoms is observable in nearly all cases and may be only very slight. A third symptom, which is very common, is a fleck of greyish mucoid material in the inner canthus of the eye. A fourth symptom is a slight nephritis, not always to be diagnosed during life, but generally to be found post-mortem. Symptoms such as these may be found and will be found in outbreaks differing widely in their general character, for we know there are many such outbreaks where perhaps in some the general conditions may be of respiratory trouble, while in

others the disease is of the typhoid type, whereas in another it may be of the nervous type.

The exanthem I consider to be the most important and the most diagnostic symptom which is ever seen. To my mind, its importance and its value in diagnosis cannot be over-estimated. More than twenty years ago Mr. Henry Gray drew my attention to the significance of the skin eruption in distemper, and from 1902 onwards I have made as close a study of it as is possible to one in a busy practice. As time went on I became more and more certain that it was pathognomic, but I could not persuade others that it was so. In 1908 I wrote a paper on the symptoms and diagnosis of distemper and emphasised the importance of this rash as a diagnostic symptom, and I drew attention to it at a meeting of this Association, but the only support which I received was from the late Mr. Wallis Hoare who was, I know, in cordial agreement with the views I held. To this day, I believe, the majority are against me when I lay stress on the diagnostic value of this eruption. Eminent practitioners still maintain that it is due to other causes, and it is only comparatively few who would look for it in every case of the disease. Because they have not seen it they maintain that it does not occur. But I maintain that it may be seen in nearly every case, and I shall describe it and deal with it in a later part of my paper. When once seen it puts all doubts at rest as to what the case really is, and when it has been recognised it cannot be mistaken. The nervous symptoms are not so easy to differentiate from those of other diseases.

I should say that the symptoms of distemper, and of distemper *alone*, so far as I am able to recognise them, are as follows :—

1. Rise of temperature.
2. A rash, to be found on the skin or mucous membrane.
3. Disturbance of the nervous system, and probably
(4. A nephritis).

All other symptoms are caused either by other causal agents alone or by these in conjunction with the distemper virus. This is the explanation I offer for the wide variety of symptoms to be observed in outbreaks and in different cases in any one outbreak.

1. *Rise of Temperature.*—A definite reaction to infection is shown by a rise in temperature. Various authorities place a variable period upon the time that elapses. My experience has been that the rise occurs between the third and fifth days, in nearly every case on the third day ; in a few cases, when I could make exact observations, it has occurred from the 65th to 70th hour. The rise is rapid and is generally up to 104°, but I have recorded temperatures of 106°. Subject to the eruption of the rash it may persist for some days or even weeks, or it may rapidly decline, but it generally gradually subsides during the next three days and remains at or near normal for about three weeks. If it has been unusually high and falls rapidly it often drops to subnormal. I have known the temperature to remain above normal for over six weeks without any very marked symptom developing except loss of condition and wasting of the muscles. In this case nervous symptoms followed after three months. On the other hand, I have known the temperature to drop to normal within the space of twelve hours.

At the time of temperature reaction there are usually to be noticed such symptoms as are usually seen in fever cases : Dullness, desire for quiet and darkness, temporary loss of appetite, diarrhœa and perhaps vomiting. Any one or all of these symptoms may be noticed.

There is one factor which seems to me to have some direct bearing on the fall of temperature, and that is the appearance of the rash. So soon as this appears the temperature drops, and I have come to look upon this as the expression of the infection : A rise of temperature, followed by a rash, and simultaneous decline of the fever.

2. *The Rash.*—This symptom I look upon as diagnostic. It has been excellently described by Gray in Wallis Hoare's System of Veterinary Medicine, from which I quote the following :—

" The skin lesion is a vesicular pustule containing a quantity of amber-tinted serous fluid, which gives the vesicle a bladdery or pock appearance. It varies in size from a pin's head to the diameter of a split pea or bean, or to that of the small finger-nail. In shape it is sometimes circular, but generally the outline is ovular. The surface is smooth, convex, and usually glistening, and the summit is always flattened, but never conical or umbilicated. It is often surrounded by an areola of a pinkish or purplish colour, the remains of the primary circumscribed spot of sub-epidermic congestion. The eruption usually starts in the form of minute red or purple spots, resembling those due to flea-bites ; but each spot is of a uniform pinkish or purplish colour, without a darker centre spot. At the end of twenty-four hours each spot appears as a small nodule, slightly raised above the surrounding epidermis ; it increases in height, and gradually fades into a clear amber-tinted vesicle. Its maximum size is attained on the third or fourth day, when it ruptures and the contents escape. The latter, in conjunction with the thin superposed layer of epidermis, dry up and form a thin scab, which generally becomes displaced, a small moist, slightly granular surface being left, which gradually fades away by the fifth or sixth day. On pigmented skins a clear or even blackish circular spot or cicatrix often remains for some time after all other traces of the eruption have disappeared. Occasionally small abraded surfaces remain, and for some time discharge a greasy thin material, which usually decomposes and gives off a very nauseous odour. The eruption is rarely pustular in character ; it usually involves the deeper layers of the epidermis. The surface of the dermis being vascular in the dog, confines the lesion to the parts mentioned. Occasionally, however, the eruption becomes pustular, involving the dermis, and leaving permanent, indelible cicatrices, which have a glistening surface and remain bald for life. This condition has been now and again observed

by the writer. In other instances minute vesicles occur, which exude a yellowish serous material. This dries up, and gives the skin an appearance as if a dry adherent material containing sulphur, or the yolk of an egg, had been applied to it.

"The eruption varies as regards the number of the vesico-pustules present. In some instances from one to three or more are observed, and occasionally they are spread all over the body, even invading the auditory cavities and the nasal, buccal, bronchial and anal mucous membranes.

"The usual seats of the eruption, however, are the almost hairless skin of the abdomen, inside of the thighs, and sometimes inside the arms, and not uncommonly on the scrotum, perineal region, the inside of the flap of the ear, and in the female on the labia of the vulva. Renewed crops of the eruption may be observed in some cases, and while one set is disappearing, another is appearing, this process continuing until convalescence is reached. When the vesico-pustules are few in number, they are generally discrete; but when very numerous, they may coalesce and form a large oozing surface, which gives off a thick exudate that mats the hairs together. At other times extensive ulcerating surfaces are left on various parts of the body, which become encrusted with scabs and emit an offensive odour.

"Pruritus is generally absent in cases where the eruption is confined to the usual seats of its election; but when the eruption becomes generalised, intense pruritus is observed, the animal constantly scratching the affected parts to such an extent that the case may be mistaken for one of eczema or sarcoptic mange.

"Exposure to chill, inclement weather, or any other adverse influences during the time that the eruption is likely to appear, may cause it to be suppressed or to become aborted.

"When the eruption appears early in the complaint, and is unaccompanied by any serious complication, it is usually a favourable sign, and provided the animal be treated rationally, recovery generally results.

"If, on the contrary, it appears late in the attack, when the animal has become prostrate from a serious complication, it is rather a grave prognostic—at least, one should, as a rule, regard it as such.

"In very malignant outbreaks, sometimes the whole of the skin has an abraded appearance, and discharges a profuse serous material, which is often so abundant that it wets the bed or ground on which the animal lies, and gives one the idea that the animals is sweating freely. The secretion has a very nauseous odour, and is usually the forerunner of death."

To the above vivid description I must make some additions. In the first place the rash is by no means always vesicular. I have frequently seen it appear as a mere erythema—a genuine flushing of the skin and a deeper colouration of the buccal mucosa. Appearing in this way it is generally ephemeral. Again, it may be punctiform in appearance and might convey the impression that the patient had been bitten by fleas, harvest bugs, or other insects. It is by no means confined to the hairless parts of the body, but is, of course, best seen in those situations. In a few cases I have seen it in the form of small purplish patches. In such cases vesication does not always follow and the rash is very transitory. Vesicles may form and do form in as short a time as two hours. They generally form in less than twenty hours. They may rupture and dry up also in two or three hours, but they may persist for three or four days. In those cases where they have formed and dried up very quickly they may easily have been overlooked, but they leave a distinct trace, such as a darkened areola or small spot covered by brownish skin debris, which is very easily mistaken for dirt. If washed away a very small depression is seen below, which is whiter than the surrounding skin. When they occur in situations where they are subject to chafing—as between the hind legs, on the scrotum or, particularly, on the skin where it is reflected on the vulva—the discharge causes at times irritation and the part consequently is licked by the patient. The condition is then generally confused with so-called eczema. It has, however, a rather characteristic smell. A similar condition is seen inside the ear, and this may be confused with canker. It should be noted that the rash is not confined to the skin, but may be seen on mucous membranes, particularly the mouth and the vulva. In the mouth it appears on the gums and the inside of the lips, two common locations being the back of the buccal pouch and just below the lower canines. On the tongue it is seen on the lower part of the sides of the attached portion. It may also be seen on the soft palate and in the pharynx.

I have never seen vesicles on the eyelids, but I have often seen red spots on the conjunctivæ and I think it is reasonable to infer that these inflamed spots may produce vesicles which, if they are situated on the eye proper, would rapidly be ruptured by the eyelid, and the break of continuity thus resulting may be the starting point of the troublesome ulcers which we find so commonly in distemper cases. In any case they may account and, I think, do account for the conjunctivitis which is one of the common early symptoms recognised.

The rash being visible on the mucous membrane of the mouth, it is possible that a similar process may take place on other mucous membranes, as, for instance, that of the stomach or bowel, and I have often suspected that this expression of the disease may be the starting point of the diarrhœa and even the broncho-pneumonia, which are such frequent symptoms. Would not such breaks in the continuity of the bronchial mucous membrane provide a most suitable nidus for the development of the *B. bronchisepticus*? In support of this suggestion I can say that I have repeatedly noticed that if any measures are taken to suppress the rash or if it is suppressed by exposure to cold, there is a rapid response shown by diarrhœa or broncho-pneumonia, or an exacerbation of either of these symptoms. On the other hand, if the rash is encouraged, and in those cases where it is

early in its onset and profuse in character, the disease is more likely to take a favourable course.

The question arises, at what period after infection is the rash to be expected to appear? I have not been able to satisfy myself on this point, as I have noted such variation in the period. In a large number of cases it will be seen a fortnight after infection. I would not deny that it may have appeared sooner, and I would agree that it sometimes is delayed beyond the fortnight to the third week. It is here that research may be able to help us. Probably the varying resistance of the body tissues in different patients may account for the varying period, the weaker dogs showing a rash sooner than the stronger; possibly also the partial immunity acquired from previous infection. A further factor may be the presence or absence of some other form of bacterial life which may hasten or retard or may even destroy the distemper virus. There is no doubt at all that the "third factors" play a very important part in the development of the disease and at present we do not know to what extent distemper is dependent upon these "third factors" for its virulence.

It is of interest to mention here that the rash may be seen on puppies before they are a week old. I have frequently seen crops of vesicles as early as the fifth day. At what previous period were these puppies infected? Did it occur *in utero*, or immediately at birth? That they are infected I have no doubt at all. Some of them die very suddenly, some waste and die without leaving any symptoms observable at *post-mortem*, and those that survive show a remarkable resistance to subsequent infection for a long period. My belief is that the mother is a "carrier" and the puppies are infected *in utero*.

3. *Nervous Phenomena.*—These I believe to be entirely due to the virus of pure distemper. There are many cases in which they are the only symptoms observed during life, and they frequently occur before complications have time to develop. When they do occur, they leave a more or less permanent mark upon the patient, which may be demonstrated in many ways. The effects, no doubt, would be more marked if the dog had a more highly developed brain, but when we consider the degree of intelligence the dog possesses we cannot but mark the deterioration in it which is to be noticed after distemper. The senses are often dulled and this is observable in those sporting dogs where the scent is highly developed. Pointers and setters are good examples. Toy dogs become stupid and lethargic, and many dogs become irritable and snappy or intensely nervous. Where the loco-motor nerves have been affected we find a slight dragging of the feet, the claws not being worn evenly, or in more advanced cases, a catching of the toe with consequent wearing down of the front of the nails. Frequently there is a degeneration in the eye. A form that everyone recognises is chorea. But a partial paralysis may result, and remain permanent. There is something suggestive in many of these cases, of encephalitis lethargica of humans, of scarlet fever and of measles.

These are, however, acute nervous symptoms which are only found in distemper, or following upon it. These may be summarised in the word chorea, for chorea is not seen in any other affection of the dog, and, so far as my knowledge and observation go, it is peculiar to the dog. It is generally ushered in by one or more convulsions, and these may occur at any time in the course of the disease. They are certainly most difficult when they appear early, when they may be the first sign noticed that anything is amiss. Meningitis and death too often rapidly follow. On the other hand, the first symptom noticed may be a progressive stupidity resulting in coma and death. Either kind of symptom signifies, I think, a nervous intoxication by the virus. The predominance of nervous symptoms is, in my opinion, a measure of the strength of the virus and therefore serves as a warning of the severity of the case.

It would appear that there are occasionally outbreaks of distemper which are of exceptional severity. There is no doubt as to the intense virulence of the infection. It is not an ordinary virus attacking a susceptable individual, or a weakly litter, because its effects are seen amongst all and sundry over a wide area. In such outbreaks one will notice the effect upon strong young puppies; it will be well seen in young hounds out at walk. Many of them are seen to be taken ill and to die within twenty-four hours, and practically nothing is to be seen by the naked eye on *post-mortem* to account for death. By watching the cases that recover one is able to identify this septic-æmia with distemper. Of the cases that do not die outright one meets many cases in which the first symptom which has been observed is some convulsion or screaming fit, after which death may rapidly follow —too often hastened, unfortunately, by the patient being dosed for worms. In other cases there is merely a progressive emaciation, with increasing apathy passing into coma and death. In these cases the most noticeable feature on *post-mortem* is the state of the mouth, which is foul and discoloured, and the excessive thinning of the bowel and stomach walls. These symptoms point to the infection being septic-æmic and showing its effect principally upon the nerves. In the cases of emaciation the trophic nerves as well as the higher centres are involved. If the case lasts over any time, when continuous observation is possible the skin eruption may be identified.

I think that the great difficulty of successfully treating this type of case is explained by the fact that it is in these cases that we have the greatest virulence of the disease.

4. *Nephritis.*—I have not made sufficient *post-mortem* examinations to enable me to come to a sure conclusion as to the invariability of this symptom. Nephritis is notoriously difficult to diagnose during life in the dog; but after death it is a condition which is almost invariably seen in dogs over six to eight years old. It is found as chronic interstitial nephritis. Why should animals which have lived healthy lives and existed for so short a time as eight years show signs of such a pathological condition? There must

be some cause, and arguing from the fact that distemper is a blood-infection, a septicæmia, and that in such infections the kidneys are very liable to become pathological; also from the fact that few—if any—dogs escape distemper infection, I think it is reasonable to infer that the nephritis has resulted from the distemper virus. This is a speculative suggestion on my part and I hope it will receive some consideration.

In my opinion, this nephritis is responsible for many cases of progressive opacity of the crystalline lens and also for the hairless and often warty condition of the skin of the back, each of which I have frequently heard described as resulting from distemper, and which undoubtedly are frequent sequels to the disease.

Infection.—I think I am right in saying that the universally accepted theory up to the present has been that the virus gains entry to the system by way of the respiratory tract and particularly by way of the nasal mucous membrane. I do not agree with this theory, even though it is quoted by eminent authorities in all text books. The special mucous membrane on the nasal pads of the nose is Nature's protection to the more delicate membrane within the nose, and I believe little or nothing gets beyond it. When infection does get to the inner parts of the nose I think it gains access by means of the lachrymal canal and sometimes the naso-pharynx. The onset of the disease following upon the smearing of infective material on the nose, does not point to the infection travelling by way of the respiratory mucous membrane. Anyone who has any knowledge at all of dogs knows quite well that immediately anything, liquid, solid or gaseous, is applied to the nostril, the dog will lick it off with his tongue and transfer it to his mouth. A healthy dog will always keep his nose pad clean, and if anything enters the nostril he will sneeze at once and again there will be much licking of the nose. This leads one to suspect that the common mode of infection is via the mouth; and the suspicion is, I think, confirmed by clinical evidence, for I am satisfied that those cases do best where the mouth is kept scrupulously clean. I go further and say that if you can keep healthy young dogs quite clean in the mouth by the use of such agents as hydrogen peroxide or other searching antiseptic you are taking the most certain measure that I know towards the prevention of distemper. I have found it of greater general value than inoculations, and I should expect to do so until the true cause of the disease has been found. I certainly have found that disinfection of the mouth is one of the first principles of treatment, and perhaps the most reliable, and I shall refer to it later in this paper.

I do not judge, from my own observation, that the infection is carried to any great extent except by the living animal. The disease is more contagious than infectious. Disinfection of premises and utensils is easy. Dampness favours the retention of the virus, but sunlight, cool, fresh air and dryness seem to destroy it readily.

I am sure that the infection can cling to a living dog long after all clinical symptoms have passed, and further than that, a dog that has an immunity may also be an indirect source of infection to others. There are many such. There are also dogs that have had previous attacks of the disease and which after further infection develop the rash, but no other symptom, and to all appearances are quite well, but which are capable of transmitting the disease to a susceptible subject. All these dogs must be looked upon as "carriers" so that one can readily understand the widespread nature of the disease and the almost insuperable difficulty in checking it. Another fact that must be remembered is the persistence of the infection. A dog recovered of the disease, that is, in which there are no longer clinical symptoms, may and often does carry the infection up to twelve weeks; that is to say, that when once a dog has been infected, one cannot say that he is safe from a relapse, nor is he safe as a possible source of infection to others for three months, though he may be reasonably so after six weeks. I have repeatedly seen obscure nervous symptoms follow a mild attack and chorea develop as long as three months after the first infection. How far the secretions and excretions are the media for the transmission of virus I am not able to judge, but I have always distrusted dogs that licked themselves excessively and those whose bodies had a clammy feeling about them or whose skins were inclined to be moist.

A matter of interest and importance regarding the spread of infection is that a dog is most infective in the early stages of the disease when the temperature is raised, but *before* any diagnostic symptom is visible. At this stage, before the eruption of any rash or the onset of husky cough or other secondary symptom, he may be and probably is allowed to mingle freely with other dogs spreading infection to all and sundry. The virulence of the infection seems to me rapidly to decline, and there are many cases two or three weeks old with severe symptoms of respiratory catarrh, which seem apparently bad cases of distemper, but which I think are not always very dangerous to other dogs.

If the above assertion is correct, as I believe it to be, it demonstrates again the almost insuperable difficulty in controlling the spread of the disease. Those who have experienced the rapid spread of measles and whooping cough amongst children will see a similarity in the spread of distemper, for both these diseases are very infective before diagnostic symptoms appear. When a dog develops diagnostic symptoms of distemper, especially when an inmate of a breeder's establishment, it is to all intents and purposes too late to prevent other cases developing, as the infection has been passed on before anything has occurred to arouse the suspicions of the owner. It is well, then, to bear in mind that fresh cases are most infectious and to put a period of quarantine on all new importations into a kennel. It is only by such methods that the very high mortality amongst hound puppies can

be lessened until we have some specific protective serum or vaccine.

Treatment.—I have very little to say on this all-important subject. At present there is no specific, and I have none to offer. A very great number of biological products have been advocated, and many are in use at the present day, but none is specific. Some that have won reputation have beneficial results in some outbreaks, and amongst these, those prepared from the *B. bronchisepticus* have proved of great service in the hands of some veterinarians. This I think one would expect, for there are undoubted outbreaks of the disease in which the bacillus plays a great part, and it is present in the majority of cases. But the distemper associated with the *B. bronchisepticus*, and described by Ferry and his school, is not the distemper that I have in mind in writing this paper. My conception of distemper and Ferry's differ very greatly, for I look upon the disease described by him to be true distemper *plus* the symptoms induced by its association with the *B. bronchisepticus*. In Ferry's distemper the *B. bronchisepticus* is probably a "third factor." I feel sure we must look for causes beyond this bacillus, and one cannot but believe that the true cause will be found amongst those organisms classed as "filtrable." If I am right, then we must wait for its identification before we can hope for any serum or vaccine that will be efficacious. There may, however, be some hope for the dog world if we can obtain a vaccine from another filterpasser which will confer immunity, or we may be able to find some other organism which is destructive to the distemper virus. I think these lines of research may possibly lead to useful results. In man, cowpox confers a useful immunity from small pox; why should not the virus of such a disease as foot-and-mouth confer a useful immunity in the dog to such a disease as distemper? I am informed that it is a recognised fact that foot-and-mouth virus will produce a vesicular eruption in the dog, similar to that of distemper; possibly other filtrable viruses might do the same and one of them, at least, might be found which would protect against distemper. But this is speculation, and I leave it in the hands of bacteriologists.

Biological treatment being independable, we are thrown back on our former resources. By far the most satisfactory method of treatment that I know and one which I can confidently recommend is dependent to a great extent upon *early* recognition of the disease. When a diagnosis is made before complications have set in, and if the infection has not been of an ultra virulent type, it is almost always quite successful. It is very simple. Keep the mouth, teeth, gums and lips as scrupulously clean as possible by swabbing out with peroxide of hydrogen. It does not matter if some is swallowed by the patient. The dressing should be carried out two or three times a day, or more often if the mouth is at all foul. Feed on unboiled milk. If the dog will drink plenty of it and take it voluntarily he will make a good recovery provided ordinary care is taken of him. No medicine of any kind is required or in, my opinion, is of any use, to combat the infection, except perhaps some internal antiseptic, and of these the most useful are hexamine and Dimol. The patient, *however well he may seem*, must be treated as an invalid and go through a long convalescence, and during the whole period absolute quiet and rest should be secured. Noise, excitement, fear, loneliness and other factors affecting the nervous system are as dangerous as, or even more so than, cold and wet. Warmth is not necessary, but an equable temperature is essential, even though it be between 40°F. and 50°F. It must be kept in mind that in this paper I am not dealing with complications or secondary infections, though, even when these occur, it is astonishing how cases improve when proper attention is paid to the mouth. If any untoward symptom, however, should arise and the use of drugs be called for, treatment should be of the simplest, and care taken not to interfere with the voluntary taking of milk. If the temperature be subnormal then some stimulant may be necessary—camphor is useful.

Skin lesions should be left alone, or at least only dusted over with dry dressing. But if severe conjunctivitis is seen, or if there is much shunning of light, the eyes should be frequently dressed with some mild antiseptic such as weak peroxide, chinosol or boric lotion made astringent with sulphate of zinc.

I am not presuming, in a short paper, to deal with all the phases of the disease and I should prefer to keep the subject of treatment out of it, but I have written shortly what I believe to be the best method, not with the intention of touching upon therapeutics, but rather in the hope that the methods may, by the success which follows their use, go a long way to confirm the assertions which I have made in the earlier part of the paper.

In conclusion, I should like to express the hope that any discussion which may arise on this paper may be centred on symptoms and diagnosis. The paper is intended as an effort to clear our vision and to help us to arrive at some definite conclusions as to the true aspect of distemper alone, from a clinical point of view; treatment must be more or less empirical in our present state of knowledge and I have tried to avoid it. I hope it will be avoided and not allowed to detract from the more important discussion on the true symptoms and the diagnosis of the disease.

Since our last issue outbreaks of foot-and-mouth disease have occurred at Swaffham, Norfolk, and at Wellingborough, Northamptonshire. Orders imposing the usual restrictions have been made.

Lieut.-Col. J. J. Aitken, C.M.G., D.S.C., O.B.E., has assumed duty as Assistant-Director of Veterinary Services, Northern Command, vice Major H. E. Gibbs, D.S.O.

The Veterinary Record.

20th December, 1924.

NEW LAMPS FOR OLD.

The advent of Christmas leads one's mind towards thoughts of holidays and amusements, pantomimes, and old nursery stories. The latter, which have been handed down to us through many generations, nearly always remind us of man's perpetual struggle after "something better," and are generally symbolical of the constant fight of the good against evil, and the eventual triumph of right over wrong. If we look around us we find the same struggle going on amongst all scientific professional bodies, and not least amongst our own ranks. We also are striving perpetually for something better, not only in our standard of living and in our comforts, but in our practices, and in our methods, and in our knowledge. Men rapidly mould their lives into grooves, and especially when circumstances ordain that those lives should be spent in busy isolated practices, far removed from frequent opportunities for the interchange of ideas and new information. Close attention to work, which is so necessary for success, leaves even little enough time for the due consideration of the personal and domestic problems which must always claim some thought from the head of the household. Where, then, is time to be found for the study of modern scientific literature, and the newer methods employed in the treatment of disease? The average general practitioner must become increasingly dependent upon his *Record* and other publications to keep him *au fait* with modern veterinary practice. He cannot hope to be able to read all the books published both in this country and abroad. He may be ready enough to adopt new methods—to exchange his old lamps for new—but he wants to be sure that he is not giving up the good for something which is no better. As time goes on we hope to be in a position to help him in his choice and greatly increase the value of our paper, by increasing the amount of information extracted from British and foreign books and journals.

For the present we may draw attention to one "new lamp" which some of our senior members may consider exchanging for one of the "old lamps" that has served so many years. They may at least like to give it careful consideration, and even go so far as to express their views upon it in our columns. Cadiot and Almy in their *Traité de Thérapeutique Chirurgicale* advocate a system of treatment for laminitis which will surprise some of our readers who have not kept themselves up to date, a system which is based on a study of the pathology of the condition, and which is based also on common-sense. Shortly, it is as follows: (1) Bleed from the jugular vein in proportion to the weight of the animal and the intensity of the disease; (2) Apply a strong counter-irritant to the upper parts of the limbs and body; (3) Inject small doses of arecoline or pilocarpine two or three times daily for a few days; (4) Apply cold affusions to the feet; exercise without removing the shoes; at a later stage use warm affusions; (5) Regulate the diet and give laxatives or purgatives and give alkaline salts in the drinking water. When bleeding from the jugular, it is recommended that 6 to 10 litres should be withdrawn if it is only to be done once, or 3 to 4 litres if it is to be repeated two or three times. Bleeding from the toe is held to be dangerous, insufficient and difficult to control, besides there being the added risk of infection, and the need for the removal of the shoe. Bleeding from the coronet is equally objectionable. Counter irritation of the skin of distant parts aids in decreasing the congestion in the feet by causing a persistently increased flow elsewhere, while it also causes the patient to move about, which is very desirable. The advantages of a rapidly-acting purgative such as arecoline are obvious, for one of the complaints against the use of aloes has always been on account of the length of time it takes to act satisfactorily, and the danger of superpurgation if given in too large or too frequent doses. This has resulted on occasions when a practitioner has been impatient. Local anæsthetics applied to the plantar nerves have advantages which deserve serious consideration. The non-removal of the shoes, no matter what is the condition of the feet, will probably find few supporters amongst the older practitioners in this country, but it should be noticed that the operation of removal is very painful, and if the animal is to be moved about or given even a little exercise (which is one of the essentials of the method) the shoes undoubtedly are a help, and especially so in cases of flat feet or dropped sole. If, however, the toe is excessively long, the shoes should be removed under the influence of a local anæsthetic. Paring and thinning the horn find no place in this treatment. The use of cold affusions to the feet is becoming more frequent amongst a few practitioners, and when employed in conjunction with the other lines of treatment mentioned might afford considerable relief to the patient. When, after a few days, recovery is in sight, hot applications are used to promote absorption, and prevent as far as possible distortion of the hoof.

Such then is a brief statement of this system of treating acute laminitis, and criticism of such methods and the discussions provoked are always very interesting. They are also of great value to the juniors, who, happily for themselves, have not found the wheels of their practices as yet lodged in the ruts which have made the road of progress rather difficult for many general practitioners.

REVIEW.

The Internal Secretions of the Sex Glands. The Problem of the Puberty Gland, by ALEXANDER LIPSCHÜTZ, M.D., Professor of Physiology in the University of Dorpat, with a preface by F. H. A. MARSHALL, F.R.S. W. Heffer and Sons, Ltd., Cambridge. pp. xviii. +493. Price 21/-).

The writer of this notice believes that the greatest advance in physiology since the discovery of the circulation of the blood, was made when Starling and the lamented Bayliss discovered the existence in the body of chemical substances secreted by certain glands, which, when poured into the circulation, produced a specific effect. In consequence of this discovery, the thymus, thyroid, adrenals, pineal and pituitary glands have yielded, or are in process of yielding, their secrets. Experimental enquiry showed that other than ductless glands possessed an internal secretion, among these the testicle and ovary. The work of Lipschütz deals with these sex glands secretions, where they are formed, their specific action on the body and gives an account of the experiments which have been employed in their elucidation. In a subject of such general public interest there has been a tendency to draw conclusions somewhat in advance of experimental facts; the great value of the work under review is not only its summary of the results which have been achieved by different observers, but the remarkably cautious tone which is observed throughout. Even where some of the experiments appear to point conclusively to a definite interpretation, the author shows reason why we should hesitate to accept the results until further confirmation has been obtained. This attitude of scientific caution causes the reader to feel that he has a perfectly safe guide.

In an early chapter the results of castration are considered; this is a subject of great veterinary interest, especially the subsequent effects on the various tissues. Considering the many thousands of castrations among animals every year, it is with a feeling of shame that we realise how slender is our precise knowledge of the effect of prepubital castration. Broadly, it is known that as the result of early unsexing, the skeleton, the thymus, larynx, pineal, adrenals, vesiculæ, prostate, penis, mammary gland, uterus, &c. undergo changes, but we know of no veterinary work where precise information is available. In the pages of Lipschütz we have an account of the changes in shape occurring in the skull and pelvis of some animals, also those differences connected with the growth of the skeleton in normal and castrated cows and bulls. These show that the increase in height of the castrated animal is due to the greater length of leg. One is tempted to enquire how far castration is responsible for the production of the "leggy," worthless type of horse so frequently met with.

The earliest known experiment bearing on the internal secretion of the sexual glands in relation to sex characters, was performed by John Hunter on the fowl in 1762. Lipschütz reviews the literature of this extraordinarily interesting subject, and shows that experiments prove these glands to secrete and pour into the blood a chemical substance or hormone, which possesses sex characteristics. "Femaleness" depends upon the internal secretions of the ovary and "maleness" upon that from the testicle. The seat of origin of these testicular hormones receives a long notice, and the author agrees with the general belief that in mammals the cells of Leydig, or interstitial cells situated in the connective tissue between the seminiferous tubules, are identified with this internal secretion. It is to these cells that Steinach has given the name of the *puberty gland*, as denoting their function in the promotion of full sexual maturity, or puberty. There is less agreement regarding the seat of the internal secretion of the ovary, and confusion exists as to what precisely constitutes the interstitial tissue of this organ. Lipschütz considers the cells of the Graafian follicle to be the seat of the internal secretion. The corpus luteum also possesses an internal secretion which, in the gravid animal is especially associated with the development of the ovum.

A chapter is devoted to the experimental proof of the sex specific action of the testicular and ovarian hormones: if, as stated above, these are specific for each sex and "maleness" depends upon the testicle and "femaleness" on the ovary, it ought to be possible experimentally to reverse the sexes, and this has been done. It is possible to "feminize" a castrated male guinea pig by an implantation of ovary, and to "masculinize" a castrated female by an implantation of testicle. It is almost romantic to read that the rudimentary male teats and mammary glands may not only hypertrophy, but secrete milk and actually suckle the young. A photograph is given to show this; nor is it less astounding to learn that a castrated female guinea pig, on which a successful testicular graft has been made, develops a hypo-spadic penis and prepuce from its clitoris and sheath, though the organ does not attain the size and shape of the true penis. The psycho-sexual behaviour of this masculinized female is purely male; it follows females in heat and fights an ordinary male rival.

The sexual hormones are formed very early in embryonic life and in connection with this we learn much regarding hermaphroditism and pseudo-hermaphroditism, which is of especial interest to us professionally. As we know, when twin cattle are of the same sex they are normal in construction, when of different sexes the male is always normal, the female very rarely so. The explanation is found in the blood vessels of the chorion; when the two chorions fuse, which occurs when the embryos are less than three quarters of an inch in length, the blood vessels between them are connected. This anastomosis allows of the blood of the two embryos mixing, and the male sexual hormones enter the blood of the female, which, accordingly undergoes masculinization. So long as no anastomosis of blood vessels occur, as for example in the sheep, the sexes remain distinct.

The free-martin is a female modified by male hormones. The male embryo does not suffer from female hormones, owing to the fact that the male sexual gland is earlier and more highly developed; it has a start in life which it maintains, and it dominates that of the female.

Sex hormones exert a manifold influence, both during embryonic and extra-uterine life; they are in close relation to the whole system of endocrine glands. Lipschütz points out their interest in relation to veterinary medicine and animal breeding. Now that the question of sterility especially in bovines, has awakened great interest, it is well that those investigating the question should know what has been ascertained in the laboratory.

The last chapter of this remarkable work deals with rejuvenation or, more correctly, regeneration; we are shown from photographs the results obtained on old dogs by testicular grafts, resulting in the production of hair, in loose teeth being rendered firm, and in one case in a senile cataract being absorbed. Voronoff's experiments on the regeneration of old rams are particularly conclusive, for the withdrawal of the graft was followed by a return of all the signs of senility, which were again caused to disappear by a second transplantation. It is very gratifying to know that Voronoff's views are being tested by the profession in this country.*

The author's attitude towards this subject is as usual cautious. He points out that senescence does not lie in the want of function of a single organ and that changes occur in the body cells, such as atrophy and sclerosis, which may be past remedy.

This book is intended for the advanced student and the practitioner who is anxious to keep abreast of modern scientific discovery. It has an extensive bibliography of immense value to those engaged in research. Though highly technical, the work is easy to read. In spite of Professor Lipschütz's remarkable proficiency in English, the sheets have had the advantage of being read by Mr. F. H. A. Marshall, F.R.S., of Cambridge, who is also a worker in the same field.

The publishers have done their work well.

F. SMITH.

Royal College of Veterinary Surgeons.

OBITUARY.

ANGWIN, J. T., M.R.C.V.S., Maltravers Street, Arundel. Graduated London, July 16th, 1901. Died December 7th, 1924.

The late Mr. Angwin was for some years Hon. Secretary of the Southern Counties Division, before which division he read several papers. Mr. Angwin served on the Arundel Borough Council from February, 1913, to November, 1921. During the war he joined the R.A.V.C. as lieutenant, becoming Captain. The deceased gentleman held an official position as Inspector under the Bognor Council. He was a member of the Bognor Lodge of Freemasons.

* *Veterinary Journal*, Vol. 80, No. 6.

CLINICAL AND CASE REPORTS.

Remarks on Sporadic Abortion in the Cow.

By E. MCSWINEY, M.R.C.V.S., Cork.

Authorities reckon that only one per cent. of all bovine abortions is non-infectious. In practice it is a wise precaution to classify all cases of abortion as due to infection. It is not uncommon to find that only one cow of the herd aborts. Circumstances do not permit of isolation of the affected animal, and no measures are enforced in order to prevent the disease, if infectious, from spreading. The rest of the herd remains healthy. In such cases, is one justified in assuming that the accident is due to infection? It is granted that, in an outbreak of infectious abortion, only one or two cows might "sling" their calves during the first year. But if there are no aborting cows or only one during the second year, it is unlikely that the single accident of the previous year was due to infection. It seems remarkable that if only an individual cow aborts it is frequently the heaviest milker. We find no clinical evidence that any one of the usually accepted causes of sporadic abortion is operating. Direct injury from kicks, falls, etc., is common in cattle, but abortion as a sequel is rare. Stockfleth and others held that a predisposing cause of abortion is the competition between the uterus and the udder.

"The cow during the period of gestation yields a considerable amount of milk. On the one hand more food is taken in to nourish and develop the fœtus; on the other, many constituents leave the body in the form of milk. The milch cow has been bred for generations with a view to produce a great milker, and has about reached in that respect the physiological limit. There exists, as Stockfleth rightly put it, a competition between the uterus and udder. Stockfleth deducts from this that when the latter is victorious the former succumbs and abortion takes place. He believes therefore that this physiological relationship ought to be looked upon as a predisposing factor in the frequently occurring abortion of the cow."—(De Bruin's *Bovine Obstetrics.*)

If there is anything in Stockfleth's teaching of more than twenty years ago, an opportunity is at hand to test it. With the advent of cows with an enormous milk yield of two to three thousand gallons a year, one would expect an increase in the number of cases of sporadic abortion. Cows of such a milking capacity are valuable. It follows that their offspring, both male and female, also are valuable. The question arises, do all these 2,000-gallon cows produce a calf each year? If not, then they may be of no greater value than cattle which secrete only three-fourths of that amount of milk but produce a calf annually. Again, granted a calf each year, is the offspring from calfhood to maturity as healthy as that from a dam with a smaller milk yield? We hear of the successes, but what of the failures?

The subject can be examined from another point of view, viz., the dietetic. On many farms the food supply is defective in quality and badly balanced. Frequently the nitrogenous ratio is too low. It is common to find, during winter and spring, that the food consists solely of roots, hay, water and a mouthful of grass.

It might be argued that ordinary food grown on the farm is not likely to be deficient in nutritive materials. All food grown on good land, if well saved, will not be wanting in its normal constituents. To quote an eminent authority, Sir F. Smith:—"If the land on which a crop is grown be poor in quality, the produce will be in a similar condition; it will be deficient in those constituents on which its nutritive value depends."

Take hay, for example, which certainly is one of the best, if not the best, single foods for milch cows during winter and spring. What do we find? It is no exaggeration to say that on the majority of farms it is cut too late; and it is not always well saved. With a diet of roots and poor quality hay it is unlikely that the excreted salts of calcium, potassium and sodium in the milk will be replaced by the intake of suitable food. The larger the yield of milk the greater will be the amount of those salts excreted by the cow. In the case of the heavy milker, instead of replacing some of the bulky food by concentrated material including one rich in calcium such as bean meal, the farmer further increases the bulky feed. If that error continues the cow will suffer. Some writers hold that the cow continues to excrete calcium in her milk although those salts are deficient in the food. Surely that mischief cannot continue indefinitely. The cow must suffer. All cows might not suffer alike. Some will show digestive trouble. Who can say that abortion never occurs from dietetic errors—whether a lack of calcium salts, vitamin hunger or what not?

Rupture of the Rectum.

By L. W. Wynn Lloyd, M.R.C.V.S., Carnarvon.

Subject.—An aged Welsh mountain pony mare, used for the conveyance of the necessities of life on its back in a steep locality, where vehicular traffic is impossible.

History.—The pony had been turned out on the moor for three days the previous week in order to be mated with one of the entires which run wild with the herd.

Condition on Examination.—July 20th, 1923, temperature 104°; pulse 65; Conjunctivæ very injected; had passed no fæces for three days; difficulty in micturition; no desire for food and drink; and general dejected appearance. There had been occasional signs of slight abdominal pains. Examination of the rectum was made with some difficulty, owing to the small size of the patient. It was found to contain about two stable-bucketsful of fæces, which I removed. The rectum was "ballooned" and paralysed owing to the continued accumulation of the fæces. On the right side the mucous lining and part of the muscular wall were ruptured a length of several inches. It was evidently a case of mis-service—the penis entering the rectum.

We administered an enema, and left the syphon with the owner, who was instructed to repeat the enemata until, and later, they produced a free motion of the bowels. No other treatment was adopted, and the pony was reported to me to appear well again in eight days, and has remained in normal health since.

Cases of mis-service are not uncommon amongst moor ponies, and it is amazing how recovery takes place under the above simple treatment if the serous coat remains intact.

The same applies to a degree in cases of prolapse of the rectum in horses. The chances of recovery depend, not so much on the size of the tumour, but on whether or not the meso-rectal and peri-rectal peritoneum are intact. Rupture of either or both of these implies the cutting off of the blood supply to the prolapsed portion, with serious results.

Dystokia.

By G. J. Roberts, F.R.C.V.S., Pwllheli.

A Shorthorn cow, in second calf, which the owner and a friend had failed to calve, was, on examination, found to have a big tumour in the vagina. It was so large that it was impossible to deliver the calf. The tumour was attached to the roof of the vagina by a very narrow neck, and, after tying it as tight as possible with thick silk, I cut it open with a knife.

The growth came out with hardly any dissection with the fingers and it weighed six pounds. The cow has quite recovered.

Under the microscope it was, as expected, a fibroma, and the only reason I had in reporting it was that I had never seen a tumour in this position one-third the size of that under notice.

The late Mr. Edward Stanley.

"In the death of Mr. Edward Stanley, Fellow of the Royal College of Veterinary Surgeons, there has passed away a retired public servant who," says the *Sydney Morning Herald* of November 8th) "deserved well of the community, but whose name and work are probably unknown to the present generation. When the Board of Health was established Mr. Stanley was transferred to the Department of Public Health as the Chief Veterinary Inspector, and it was here that he probably did his best work for the community. It was due to his report on the prevalence of tuberculosis amongst dairy herds that the first official action to control this disease was taken. The Dairy Supervision Act subsequently came into force, and the many difficulties that arose in connection with its administration were overcome largely by the tact displayed by the Chief Veterinary Inspector.

"While professionally active, in private life Mr. Stanley was of a retiring disposition, but his advice (and even more material assistance) was readily extended to those in need."

Mr. Edward Stanley, who lived in retirement at Baulkham Hills, N.S.W., graduated at the London College in 1862.

DIVISIONAL REPORT.

Royal Counties Division.

Professor Wooldridge's Interesting Cases.

A feature of great interest at a meeting of the Royal Counties Division, which was held at 10 Red Lion Square, on Friday, November 28th, was the presentation of reports of several noteworthy cases by Professor G. H. Wooldridge, who was, in the course of the proceedings, elected President for the ensuing year. The occasion was made regrettably memorable by the retirement of Major P. J. Simpson from the post of Honorary Secretary, a position which he has filled with conspicuous success for many years.

The retiring President, Mr. J. W. McIntosh, occupied the chair, and the attendance book was also signed by the following:—Messrs. H. and J. Bell, R. Catmur, H. B. Collett, A. C. Duncan, Major G. W. Dunkin, T. W. Lepper, Captain W. L. Little, M. J. McGing, Major G. Rees-Mogg, F. T. Trewin, E. Wilkinson, A. E. Willett and J. Willett.

Visitors.—Messrs. B. A. Claxton, W. Downing, G. H. Livesey and L. J. Meanwill.

The minutes of the previous meeting were read and confirmed.

The President said that since their last meeting the division had sustained the loss of two highly-esteemed members. He would refer first of all to their old friend, Mr. R. J. Verney, of Oxford, who was one of the founders of that Association. Those of them who saw him at their last meeting in what appeared to be his usual good health and vigour, were astonished and dismayed to read, in the *Record* of last week, of his death. Mr. Verney was one of the most regular attenders of the meetings of that Association even up to the last, and it was very difficult to realise that he was now gone from amongst them. He was acting in the capacity of their auditor at the time of his death. Their other loss was in the death of Mr. R. G. Gillard, also of Oxford. He, too, was a member of that Association for many years, and he also was a strong supporter of everything pertaining to the welfare of the Association and of his profession. He desired also to mention the death of Mr. Catmur, of Abingdon, who was a brother of a member of their Association. He would ask them to be upstanding, and in humblest reverence and in silence pass a very deep vote of sympathy with the relatives of the deceased.

The vote was passed in the manner requested by the President.

Correspondence.—The Secretary informed the meeting that he had written to Mrs. Verney expressing the deep sympathy of the members, and had received from Mrs. Verney and her daughter a letter of thanks.

The receipt of letters of apology for non-attendance was announced from Messrs. W. A. Austin, J. R. Baxter, W. T. D. Broad and S. L. Slocock.

The meeting would remember, continued the Secretary, that he had been instructed to convey their congratulations to Mr. S. H. Slocock upon his election to the Presidency of the R.C.V.S., Mr. Slocock had replied, "Will you kindly convey to the members of the Royal Counties Veterinary Medical Association my keen appreciation of their kindness in congratulating me on my election as President of the Royal College of Veterinary Surgeons. The good wishes of the R.C.V.M.A. particularly appeal to me as it is my parent Society and I am one of its foundation members. I must hope and endeavour to carry out my duties in a way that will please your members, many of whom appear to me destined to obtain the profession's highest honour."

The Show Question.

A letter was read from the Secretary of the N.V.M.A. conveying the information that the resolutions forwarded by the Royal Counties Division *re* the desirability of the re-introduction of the Tuberculosis Order of 1914, and of the standardisation and control of tuberculin, were considered and approved at a meeting of the Council held on July 2nd.

A further letter from the same source was read forwarding the following resolution passed by the Western Counties Division:—"We, the members of the Western Counties Veterinary Medical Association, consider that the time has arrived when veterinary surgeons should be paid an adequate fee for their attendance at dog shows."

Major Dunkin expressed the hope that they would support that resolution. Attempts had been made in the past to compare dog shows with agricultural shows—they were entirely different entities. In the days when he was in practice he was for several years veterinary inspector to one or two dog shows, and he, in common with his colleagues, took great exception to the method of treatment of the veterinary inspectors at those shows. Apart from that, there was the well-known fact that canine societies as a whole, and the individual societies, were in a position to pay a very good fee.

Professor Wooldridge remarked that when they considered the responsibility that attached to the veterinary inspection of those shows, it was a shame that they should be expected to carry out the duties for nothing. The object of the inspection was the safeguarding of the animals against contagious diseases. The inspection sometimes was perhaps not as adequate as it might be, but circumstances did not permit it to be otherwise. It would be far better if more adequate arrangements were made. In the interests of the shows, of the dogs, and of the owners, it would be far better if proper fees were paid.

Mr. Male expressed the opinion that the veterinary inspector at a dog show was in a very responsible position; if an outbreak of distemper occurred he was blamed by everybody whose dogs had been involved. Professor Wooldridge had referred to the inadequacy of the inspection; he (the speaker) had heard of veterinary surgeons who had taken the

temperature of nearly all the dogs who had gone into the show. He thought that was an excellent idea. He presumed that the Western Counties would forward that resolution to the Kennel Club and impress upon that body the necessity of paying an adequate fee—and it ought to be a good fee. They, for their part, would, he presumed, insist on their members refraining from undertaking the examination of dogs until they had a fee, otherwise there would be some sort of competition between those who accepted a fee and those who did not. He hoped that if that were made general all veterinary surgeons would support the resolution and refuse to act on any occasion unless they had a proper fee. There should be a minimum fee laid down.

Mr. TREWIN asked if that should apply to shows of all kinds of dogs. In his own town they had a show of terrier dogs and he thought there was a great deal of difference between a show of that kind and an important dog show.

The HON. SECRETARY thought that the question also applied to horse shows. It was quite certain that in all of these shows the exhibitors were out for their own ends. If a veterinary inspector must be paid for a dog show, he thought he must be paid for a horse show.

Mr. MALE did not agree with that assumption, because in a dog show they examined a dog for the protection of the owner. Those owners must have the dogs inspected and a very great deal depended upon that examination, whereas with horses it was very often only a case of a few animals being inspected, and that for soundness—it was not then a case of affording protection to the whole of the people who sent their animals to the show.

Mr. CATMUR thought that, when officiating at shows which were not in a position to pay an adequate fee, they should nevertheless demand a fee, thereby establishing the principle, but they could refund it as a donation.

Mr. LIVESEY spoke to attending a recent meeting of the Western Counties Division at which the ideas which had led them to formulate that resolution at the previous meeting were elaborated. They were anxious that it should apply entirely to dog shows. The intention was to get the expression of opinion throughout the country and to leave it in the hands of the parent body to deal with eventually. It was quite well realised, at the many meetings at which this matter had been discussed in the country, that some of the small breed societies, especially those small canine societies which had recently been started, were quite unable to pay an adequate fee for the work, but a useful suggestion had been made, which might be embodied in the resolution, and that was that the veterinary surgeon acting as inspector for the show should be paid a fee when the show was a championship show. All the divisions would, he thought, agree that it was right and proper for a veterinary inspector to be paid at a show, but that the fee should not be claimed unless it was a championship show. The speaker concurred with the views expressed by Mr. Male in regard to the differentiation between horse shows and dog shows.

After further discussion, the following resolution was passed unanimously for forwarding to the N.V.M.A. :—

"This division is of opinion that the veterinary surgeon acting in the capacity of inspector at a dog show held under Kennel Club rules should be paid an adequate fee for the duties he is called upon to perform."

The SECRETARY said that the members would have received the circular letter which he had sent out as the result of a suggestion made by Captain Little to the National Institute of Research in Dairying, of Shinfield, who were anxious to secure a cow suffering from tuberculosis of the udder and excreting viable tubercle bacilli with her milk, which should be otherwise normal in appearance.

The PRESIDENT, having extended a welcome to Mr. Meanwill, a representative of the Institute, invited him to speak on the matter.

Mr. MEANWILL said they had been working for some months on the question of the viability of the tubercle bacillus. A lot of work had been done on highly infected milk, but they wanted to get a cow giving apparently normal milk but that contained tubercle, and, if possible, the cow should live for some time. The Institute would supply sterile bottles for the taking of samples of suspected milk, which should be forwarded for examination, after which the Institute could arrange, if necessary, directly with the farmer for the purchase of the cow, if the veterinary surgeon approved of that course.

Mr. Meanwill was assured of the co-operation of the members in this matter.

The SECRETARY read a letter asking for the appointment of delegates to the Royal Sanitary Institute Congress to be held at Edinburgh in July, 1925.

Proceeding, Major Simpson observed that, while they had supported the Institute most loyally in the past, he wished to propose that they did not send a delegate to Edinburgh, on the ground of expense.

Mr. MALE, having expressed the hope that the Society would be represented, the SECRETARY withdrew his resolution, and asked that the matter be allowed to stand over for the next meeting.

This course was adopted.

New Members.—Messrs. H. Bell and J. Bell, of Maidenhead, were, on the proposition of Major P. J. SIMPSON, seconded by Mr. J. W. MCINTOSH, unanimously elected members of the Society.

ELECTION OF OFFICERS.

The PRESIDENT: We now come to the "changing of the guard," but before I leave the chair, I should like to thank every member of this Association for the warm support they have given me during the past year. I desire specially to thank our Secretary, Major Simpson, for his very loyal help and support during my term of office—without him the office would have been much more difficult. I need not enlarge upon his many qualifications for

the post he has occupied so well, nor upon his enthusiastic efforts on behalf of the Society, but I would like to say this, that you have only to pass through the chair to realise to the full extent the amount of work Major Simpson does for the Association. He is really wonderful and we owe him a very deep debt of gratitude for his services. (Applause.) I desire also to say a word of sincere thanks to our Treasurer, Mr. Male, who is "one of the best," and who looks after the financial affairs of that Association very well indeed.

It is, continued Mr. McIntosh, the privilege of the retiring President to nominate his successor, and it is my happy duty to submit to you the name of a gentleman well known to you all—one who occupies a very high position in his profession—Professor Wooldridge. (Applause.) We know what a very busy man he is, and yet, with it all, he finds time to come to our various meetings, and he is always ready to contribute from his store of knowledge for the benefit, and to the unfailing interest of this Association. The conduct of the chair will be quite safe in his hands, and by honouring him we shall be honouring ourselves. I have much pleasure in submitting for your approval the name of Professor Wooldridge as your President for the ensuing year. (Applause.)

Major P. J. SIMPSON, in seconding, said that Professor Wooldridge had been a very great help to him in his position as Secretary, because he had so often come forward to fill awkward gaps in the programme.

Professor WOOLDRIDGE, in acknowledging his enthusiastic election, said he had not desired that honour at the present time, as he had many things on hand which would make it very difficult for him to fill the office with the assiduity it merited. In view, however, of their unanimous agreement, he could not do other than accept and promise to do his best. (Applause.)

Vice-Presidents.—Professor J. B. Buxton, Mr. J. W. McIntosh, Major G. Rees-Mogg and Mr. F. T. Trewin.

Hon. Auditor (in the place of the late Mr. J. Verney).—Mr. J. Willett.

Hon. Treasurer.—Mr. G. P. Male.

Hon. Secretary.—Mr. R. Catmur. This election was rendered necessary by the retirement from the office of Major P. J. Simpson who, despite efforts by Mr. A. E. Willett, Professor Wooldridge and others, could not be persuaded to alter a decision which the retiring Secretary averred he had tried, without success, to carry into effect every year for the past five years. He (Major Simpson) was genuinely sorry that he had to "stick to his guns," but he was now President of the Central and had gone back into practice, so that he had too much on his hands to render it possible to reverse his decision. He asked to be relieved and he would promise his successor all the assistance he could give. He was sure they would have a most excellent man in his place, a better man—representing that "young blood" which it was, he felt, so necessary to introduce from time to time if such societies as those were to progress—if they would assent to the gentleman he wished to nominate, Mr. Catmur, of Abingdon. Mr. Catmur was full of enthusiasm for the Society.

The PRESIDENT: In the retirement from office of Major Simpson, the Society is losing the services of one who has done a great deal for it. (Applause.) There is, however, much in what he has said in regard to the demands made upon him, and the Society must not be too selfish. It is evident that in continuing to insist upon his occupancy of the post of Secretary we should be asking too much of Major Simpson.

Mr. J. WILLETT, in view of Major Simpson's explanation of his position, seconded the nomination of Mr. Catmur, and Mr. A. E. WILLETT and Professor WOOLDRIDGE, who had proposed and seconded, respectively, the re-election of Major Simpson, withdrew the nomination in favour of that of Major Catmur.

Major CATMUR, having been elected, made suitable acknowledgment.

Next Meeting.—It was agreed that the next meeting of the Society, which was the annual gathering, be held, with the annual dinner, at Reading, on the last Friday in January.

VETERINARY INSPECTORS' FEES.

Correspondence from the Secretary of the N.V.M.A. was read requesting the Association to call a meeting of the veterinary inspectors in its area with a view to arriving at an agreed scale of fees for the work of veterinary inspection under the Diseases of Animals Act. Agreement having been reached, the various local authorities concerned were to be approached, and the result of that action forwarded to the parent body. Similar requests were being made to all the divisions and, when the fullest possible information had been obtained, pressure was to be brought to bear by the N.V.M.A. on the County Councils Association in order to get them to move in the matter, which they had hitherto refused to do.

The President called upon Mr. MALE to speak on the matter, and the latter said: As perhaps you know, the Veterinary Inspectors' Association had many meetings some years ago and collected statistics of the fees paid in many counties, and we made a great effort then to get a revision of these fees. It was successful in some, but in others the County Councils absolutely refused. Unfortunately, the veterinary inspectors did not have the support of the other members of the profession in their districts, consequently they were not strong enough to say that they would not do this work unless their demands were conceded.

In my opinion, the only successful way to attain our object is to have the full support of all the members of the profession in the various districts (applause) and, although it is perhaps more a matter for the veterinary inspectors to decide for what fees they will do the work, yet at the same time they are dependant upon the help and support of their confreres. Therefore I think it is wise that the matter should be

discussed at an open meeting, so that it should be known what is being asked and what the views of the inspectors are. I think it should be discussed here and that then the inspectors for the various Councils should come to some unanimous opinion as to the fees they want; then the fees should be sent to the "National."

Mr. TREWIN expressed the view that they should first get a thoroughly representative meeting of veterinary inspectors to discuss the subject.

Mr. MALE then suggested that a meeting of veterinary inspectors should be held an hour or so prior to the annual meeting at Reading in January.

Mr. J. WILLETT observed that the Secretary of the "National" was very anxious to obtain at the earliest possible moment copies of the scales of fees paid in the different counties covered by the Society.

Professor WOOLDRIDGE proposed, and Mr. J. WILLETT seconded, and it was agreed that the Secretary should write the inspectors in the various counties in the area covered by the Society asking them to forward to the Secretary of the National the scales of fees at present in vogue, and that a meeting of inspectors in those counties be called on the same day as the January meeting of the Association one hour before the ordinary meeting.

THE NEW PRESIDENT'S CASES.

PERMANENT URETHROTOMY IN A GELDING AND A DOG.

Professor G. H. WOOLDRIDGE: I have got two cases, in the courtyard, which I wish to show you, and they are very similar from a surgical point of view. One is a gelding and the other an Irish terrier dog. I was called in by Mr. H. King, M.R.C.V.S., between two and three years ago to see this gelding, which had difficulty in micturition, necessitating the passage of the catheter on several occasions, but after a while the difficulty increased in passing the catheter, an obstruction being met with one foot or 18 inches from the glans penis. The horse would micturate and suddenly would cease in the middle of the process and be attacked with sub-acute colic. After a time the obstruction could only be moved by the use of a stilette or bougie, which process had, after a time, to be repeated twice a day, owing to an increase in the trouble. Mr. King asked if amputation of the penis should not be performed. My view was not favourable, because one has so often seen stricture of the urethra at the point of amputation. I therefore suggested that we should perform urethrotomy at the ischial arch. If first occurred to me that possibly there might be trouble with the dribbling of urine from the perinæum causing excoriation, but I dismissed that when I realised that one was not likely to interfere with Wilson's muscle, and the sphincter vesicæ. I made a large longitudinal incision down upon and into the urethra, and irrigated the urethra through the operation wound. I then sutured the urethra on each side to the skin. One was able to get, for a while, a small jet of disinfectant through, but before long that ceased. We irrigated the bladder and found a large quantity of fibrinous lymph coming from it; we had, therefore, to deal with a condition of urethritis and cystitis. The wound did well, and we were able to permanently maintain an opening two inches long, through which the gelding can micturate quite easily; there is no dribbling of urine and, in consequence, no excoriation. The gelding has been working for two years since. I think it is quite unnecessary to slaughter any animals with stricture of the urethra.

Rather more than a year ago a young Irish terrier, one year old, was brought to me. He had been fighting and his antagonist had attempted to tear out his penis. He had crushed the os penis to the extent that it penetrated the urethra and a stricture of the urethra followed. I operated similarly, therefore, upon the dog and he has made a perfect recovery. Prior to the operation the dog was "as thin as a rake"—he is now in splendid condition. In his case, too, there has been no excoriation. Yet, after all this time of micturating in the manner of a bitch, he still cocks his leg when relieving himself, nor has he forgotten the opposite sex, although he is useless so far as the opposite sex is concerned—it looks as if the penis is almost atrophied.

The members at this point adjourned to the courtyard, where Professor Wooldridge exhibited the gelding which was the subject of his operation of perineal urethrotomy resulting in the production of a permanent fistula. Irrigation of the urethral tract and bladder with normal saline, to which a little creolin had been added as a disinfectant, was carried out by Professor Wooldridge, and great interest was displayed by the members in the perfect urination which took place through the fistula in the perinæum, there being no dribbling, which would have led to excoriation.

A return being made to the Council chamber, the terrier was similarly examined.

Professor WOOLDRIDGE, continuing, said, with regard to the cases you have just seen, the main reasons I had for bringing them to your notice were (1) to point out that in some of these cases where slaughter is the thing that suggests itself, it is really not necessary, for a horse can be made useful for many years, even though he has complete stricture, and (2) in the case of a dog a similar operation will afford him complete relief. In neither case is there excoriation or soiling of the perineum, nor is there any question of cleaning everyday. I am rather sorry that you did not get an opportunity of seeing the dog evacuate his bladder, but it is exactly the same as in the gelding—the method resembling that of the opposite sex.

LITHOTOMY IN A GELDING.

In some of these cases of urethrotomy you experience a difficulty in keeping the urethra patent, as in the case of a hunter gelding, 15 h.h., of blood quality. He was affected with

dysuria and on examination *per rectum* a calculus was readily disclosed in the posterior part of the bladder, close to the neck. I was asked to operate with a view to its removal and I decided that with a calculus of that size, any idea of crushing was out of the question and that the only way to effect its removal was by ischial urethrotomy. This is the calculus (produced) with which one had to contend. I tried conducting the operation in the standing position (as I did in the case already seen) under the effect of the suffusion of cocaine, and I found it was impossible—the horse strained a lot and looked like throwing himself down. This was removed, therefore, under chloroform anæsthesia. I made the incision high up at the ischial arch and then cut down on to the urethra. In this instance, I passed the catheter and that assisted me in the recognition of the urethra. I slit the urethra up two or three inches in the first instance and then passed the sound and felt the calculus clearly. I had to dilate the urethra enormously to get such a thing as this to pass through, and I smeared round it with belladonna, then attempting to dilate it with three fingers, but I could not achieve a result of any value. I then, however, was able to employ a vaginal speculum—one with three expanding arms, and with that I was able to get the urethra to expand to a very considerable extent. The next thing was to grasp the calculus. None of the ordinary forceps was big enough for the purpose so I got a lambing forceps. I had to get it into the urethra and then release it and use pressure from behind, with the hand in the rectum. Then the instrument jammed in the urethra in the pelvis and by its own pressure greatly increased the dilatation. With the use of a little oil and with patient work I got the calculus fixed between the jaws of the forceps and withdrew it. I then passed my hand from the urethra into the bladder and satisfied myself that there was no other calculus present. In that case I treated for some days with irrigation of the bladder with saturated solutions of boracic acid. In this instance, as I have said, the trouble was to dilate the urethra sufficiently. In fact, I had to increase the incision in the urethra until the anterior extremity of my wound was well forward in the pelvis. It seemed to me that such a wound would never close, but it did, absolutely and completely, and the hunter hunted the following season. That was two years ago, when I lost sight of him. The wound took about two months to heal. The size of the calculus is revealed by the following measurements:—Maximum length, 3½in.; maximum width, 2⅞in.; maximum thickness, 2⅛in.; larger circumference, 10in.; smaller circumference, 8in. The total weight is 10 oz. 1 dr.

Caponising of Ostriches (with Exhibition of Testes).

The ostriches in question were part of the exhibit at Wembley, in the South African section. South Africa has almost a monopoly of the ostrich feather industry, and it was the intention to leave the birds, after the closing of the exhibition, with different menageries. They therefore desired that the males should be caponised, so that there should be no likelihood of a nucleus of the ostrich feather industry being established. I was requested to perform the operation.

In cockerels the usual seat of operation is between the two last ribs and that is done in front of the leg. In the ostrich the operation is performed behind the leg. A hood was first put over the head and he was cast by ropes on the legs and they were secured quite simply. Then, with someone half sitting on his back, he was easily held down. The bird was then anæsthetised. The anæsthetic is given by a special hood, of which I have an example here. It is attached to the head and neck by a long soft leather, which is strapped round at three places. The head, which is in the bag, is fixed into this metal cylinder, which has inside, separated by a perforated plate, the chamber which forms the cavity into which the chloroform is inserted on a pad of cotton wool. The admission of air can be regulated by this mechanism, which turns round and opens or closes the aperture. I started by giving 8 or 6 drachms of chloroform, but I was astonished to find that this bird took quite as much chloroform as the average horse and in some cases I had to give as much as 4 ounces. They took chloroform very easily and very well. When anæsthesia was complete the small feathers were plucked out over the operative region, the leg drawn forward and an incision made in the lower third of the abdominal wall. The incision was about 3in. long. There was a good deal of muscle, well supplied with blood vessels, which caused a lot of bleeding, and a striking feature was the enormous thickness of the sub-peritoneal fat below the muscle. The peritoneum was grasped with forceps and slit, and the hand inserted, from which point the operation exactly corresponded to the "rig" operation. If you met with a thing like that (the produced testes) you would think you had got the kidney. (Laughter.) The testicle was brought down by slow tension but, having got it down, it was difficult to get it through the small operation wound. The size of the testicles varies tremendously in different birds. These birds were presumably about four years old, which is a little older than the usual age at which they are caponised. It is an interesting physiological fact that during the mating season the testicles increase in size considerably; during the close season they retract. All the birds did well after the operation.

(*To be continued.*)

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest in these columns.

Diary of Events.

Dec. 23rd—Confirmatory General Meeting of the Association.

1925.

Jan. 1st—Nominations for election to Council R.C.V.S.

Jan. 2nd—Meeting of the Central Division, 10 Red Lion Square, W.C.1.

Jan. 7th—Foreign Voting Papers R.C.V.S. issued.

Jan. 7th—R.C.V.S. Examination Committee, 2 p.m.
Jan. 8th—R.C.V.S. Committee Meetings, 11 a.m. to 1 p.m., 2 p.m. to 5 p.m.
Victoria Veterinary Benevolent Fund Council, 5 p.m.
Jan. 9th—Publication Committee R.C.V.S., 11 a.m.
Finance Committee R.C.V.S., 12 noon.
R.C.V.S. Council Meeting, 2 p.m.
R.C.V.S. Special Council Meeting, 3-30 p.m.
Jan. 15th (3 p.m.)—Meeting of the Provisional Committee, Red Lion Hotel, Cambridge.
Jan 22nd—R.C.V.S. Special Council Meeting (probable date).

Discussion has sometimes arisen as to the seniority of some of the veterinary societies which now form Divisions of our Association. We have the dates of foundation of some of these, but by no means all. It would be very interesting to all our members if secretaries of divisions would refer to their minute books, and send us for publication some information regarding the inaugural meetings of their original societies. Probably some of our senior members could supplement this information if they happened to be present. We shall be glad to publish letters on this subject.

* * * *

It was a great compliment to Sir Stewart Stockman and a tribute to the work he has done, that nearly a hundred veterinary surgeons should have met at Manchester recently to hear him speak on the subject of foot-and-mouth disease. It was the more so, because scarcely anyone present at the meeting is ever likely to profit even to the extent of a penny piece, either from the occurrence of the disease itself, or from the methods for its suppression. We have always felt confident that a warm welcome awaits Sir Stewart whenever he comes amongst us at our meetings, and we hope the future will permit of his doing so more frequently.

* * * *

We continually hear complaints of the lack of practice in London and suburbs. Apparently some of the practice has gone into the hands of unqualified persons and some is being done by organisations which profess to provide treatment for the animals of people who are supposed to be unable to pay the fees of qualified men. Thus we see that over 200,000 sick animals are stated to have been treated by one such organisation in London in one year. Can it be possible that none of the owners of these animals could afford to obtain skilled advice from properly qualified men?

* * * *

We offer our hearty congratulations to Professor Sir John M'Fadyean on his election as corresponding foreign member of the French Academy of Medicine. We believe that this is the first time in the history of the profession that this honour has been conferred upon a British veterinarian.

Dr. De Jong, of Leyden, has been elected to a similar position.

CORRESPONDENCE.

The Etiology of Milk Fever.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I have been interested by the article on the etiology of milk fever by Mr. Pugh, by his letter, and by the letter of my friend and neighbour, Mr. Smythe.

The clinical observations of these gentlemen have in some respects led them to opposite conclusions. I find myself partly in agreement with one and partly with the other. Why such divergence of opinion is possible it is difficult to explain, unless the symptoms and incidence of the disease are influenced by the breed with which one is dealing, by the particular method of cow management in a given district, or by geographic position, or by a combination of these circumstances.

I do not know what percentage of cases Mr. Pugh would term rare, but taken together the conditions he classes as being rarely associated with milk fever, would account for 8 to 10 per cent. of the cases occurring in this district.

With regard to the injection of fluids into the udder, before adopting the inflation method we had over 75 per cent. of recoveries following the injection of half a pint of weak antiseptic solution into each quarter, and this before the introduction of telephones and motors which enable one to attend to the majority of cases much earlier than was possible before. It will not be seriously contended that this percentage recovered in spite of the treatment. Inflation certainly gives better results, but I express no opinion as to the method of its action. In section 7 of his article Mr. Pugh indicates that the disease is cured by inflation, and suggests that it cures by inhibiting the flow of milk. In replying to Mr. Smythe he agrees that in very many cases partial or complete cessation of lactation has occurred when staggering appears. How does this coincide with the suggestion that inflation cures by inhibiting the flow of milk?

It is difficult to prove whether emptying the udder has any effect in the production of the disease or not. If experience gained by an enquiry into the history of each case goes for anything, I have no reason to think it makes any difference. Certainly milking out when the first symptoms appear does not cause cases to become rapidly worse. The earliest clinical symptoms I have noticed are slight inappetence, disinclination to drink, and the beginning of intestinal stasis as evidenced by less frequent action of the bowel. They are all common before paddling with the hind feet or other indications of incoordination.

I am not so certain as Mr. Smythe that restricted diet prior to calving has not an influence on the incidence of milk fever. Like him I have had many disappointments in this respect. At the same time we see more milk fever in seasons when there is in abundance of fresh grass than when the opposite state of affairs prevails.

If ketosis is always present in milk fever and not in the cases which Mr. Smythe describes as clinically indistinguishable, then his line of thought will be weakened. I have seen many cases occurring weeks or months after calving which in many respects resemble milk fever, but my percentage as compared with cases occurring at or about the time of calving is much lower than that of Mr. Smythe. The majority of my cases have, however, shown one symptom which is unusual in milk fever, and that is diarrhœa at some time during the illness. In severe or fatal cases of this type I have not seen the urine coloured by what appears to be blood pigment, but in severe or fatal cases of milk fever that condition is fairly common. The worst cases of milk fever have, in my hands, responded much better to inflation of the udder than the worst cases of the other type, on the average. It is not suggested that inflation of the udder is never useful in these cases, for that would be contrary to experience, but, taking the milder cases, the majority will recover with treatment other than injection of the udder, and that does not apply to milk fever.

Although this other condition to which I refer appears to be unconnected with pregnancy or parturition, it appears to be mainly a disease of females. I have not seen a parallel case in a male, although it is admitted that bulls and steers do not live under precisely the same conditions as milch cows. If such cases do occur, it would be interesting to know what treatment is adopted, and with what results.

Whether or not Mr. Pugh's theory is eventually confirmed we should be grateful to him for the work he has done. The article deserves notice, and it is to be hoped that the lead to discussion given to Mr. Smythe will be well followed.—Yours truly, S. J. MOTTON.

Penzance,
14*th December*, 1924.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—The etiology of "milk-fever" in cows (like the etiology of all animal diseases) must synchronise with all the known facts concerning that disease to make it a correct etiology. The term or name "milk-fever" is a very unfortunate one. It is very misleading to students, stock owners, and veterinary practitioners, as there is no increase in temperature in this disease, therefore no fever is present, but, generally, the reverse—a sub-normal temperature. Veterinary nomenclature, names, and terms, should, in my opinion, be carefully revised to make them correspond more closely to the disease to which they refer. Until this is done, and veterinary teachers and professors teach veterinary students new and revised names for animal diseases, the present unsatisfactory, muddled terms will continue to be used, and thus keep up the present confusion which might easily be prevented, thereby giving much better satisfaction to stock owners and the Veterinary Profession generally. Many better terms for the condition under notice might be used, as I suggested in the *Veterinary Record* some time ago, such as "udder staggers," "milk staggers," "milk megrims," "udder megrims," "udder hypesemia," or even the old term "dropping at calving," or "dropping after calving." The last named is a much more sensible term than "milk-fever," for it is not, as is that term, a misnomer and misleading. This disease of "milk or udder staggers," or "milk megrims," or "udder megrims," whichever name you choose to adopt, is a definite and well pronounced disease occurring in our deepest or heaviest milking types or breeds of dairy cows at, near, or after parturition, and at no other period of the cow's existence. Any disease which may occur at any other periods must be given a different name and designation and must occur from other causes or circumstances that the disease erroneously named milk-fever in cows "udder staggers" or "milk staggers" cannot occur in dry animals, as there is no milk in the udder to cause it. It must be some other disease, and must be caused by some other derangement of the animals' system, and the symptoms, etc., fully explained, also the *post-mortem* appearances given in both cases as between heavy milking cows and dry cows, etc..etc. No dairy farmer or dairyman would listen to anyone telling them that "milk fever" (as it is termed) ever occurred in a dry cow, unless in cows just at or near calving, or eight or ten days after calving. Veterinary practitioners are much more concerned with the correct treatment and prevention of animal diseases than with their correct etiology, but where an approximately correct etiology can be discovered it is also of the greatest assistance to the intelligent understanding of animal diseases.—Yours, etc., J. D. POTTIE.

Greenock.

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